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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/800,214	LAUER, BRYAN A.
	Examiner	Art Unit
	Ben H. Liu	2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3 months*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *12 October, 2005*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The lengthy specification has not been checked to the extent necessary to determine the

presence of all possible minor errors. Applicant's cooperation is requested in correcting any

errors of which applicant may become aware in the specification.

Claim Objections

2.   Claims 1, 6, 7, 10, and 26-29 are objected to because of the following informalities:

In claim 1, it appears the limitation "a first node" in line 5 refers to the limitation "a first

node" in line 3. If that is the case, it is suggested that the applicant change the phrase to "the first

node." A similar problem exists for the phrase "a second node" also in line 5.

In claim 6, it appears the limitation "an operational state of the path" in line 12 refers to

"an operational state" in claim 1 line 10.   If that is the case, it is suggested that the applicant

change the phrase to "the operation state." A similar problem exists for the same phrase recited

in claim 7 line 4.

In claim 10, it appears the limitation "a GTP Echo Response message" in line 2 refers to

"a GTP Echo Request message" in claim 4 line 4. If that is the case, it is suggested that the

applicant change the phrase to "the GTP Echo Request message."

In claim 26, it appears the limitation "a path integrity protocol table" in line 2 refers to "a

path integrity protocol table" in claim 24 line 10.   If that is the case, it is suggested that the

applicant change the phrase to "the path integrity protocol table." Similar problems exist for the

same phrase in claims 27-29.

    Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1, 4-6, 12-14, 24-28, 31, and 32 are rejected under 35 U.S.C. 102(e) as being

clearly anticipated by Kavanagh (U.S. Patent Application Publication 2003/0081607).

    For claim 1, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, the method comprisies defining a path based on a first

node IP address, a second node IP address and a UDP port number; receiving, at a first node, a

first GTP message from a second node; extracting one or more of: the first node IP address, the

second node IP address and the UDP Port number, from the first GTP message (see paragraph 47

and figure 4); determining an operational state of the path based on the first received message

(see paragraph 36); and storing the operational state of the path in a path integrity table, in

association with the path definition and a time stamp related to a time the first GTP message was

received (see paragraph 55).

For claim 4, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, the method further comprises determining a difference

between a value of the time stamp and a current time; and transmitting a GTP Echo Request

message from the first node to the second node, using the UDP port number and using the first

node IP address as a source address and the second node IP address as a destination address, if

the difference between the value of the time stamp and the current time is greater than a

predetermined refresh time (see paragraph 53 and 55).

For claim 5, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, wherein receiving, at the first node, the first GTP message

from the second node comprises: receiving a message selected from: a Create PDP Context,

Request message, a GTP Echo Request message, a Create PDP Context Response message, a

GTP User datagram, and a Gratuitous GTP Echo Response message (see paragraph 48).

For claim 6, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, the method further comprising: receiving, at the first node,

a second GTP message from the second node; extracting the first node IP address from the

second GTP message; extracting the second node IP address from the second GTP message;

extracting the UDP port number from the second GTP message; determining the path definition

based on the first node IP address, the second node IP address and the UDP port number;

determining an operational state of the path based on the second received message; updating the

operational state entry associated with the path definition in the path integrity table; and updating

the time stamp with a value related to a time the second GTP message was received (see

paragraph 64).

For claim 12, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, the method further comprises storing an administrative

state of the path, in association with the path definition in the path integrity table (see paragraph

36).

For claim 13, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, the method further comprises receiving administrative

state information regarding the path; and storing the administrative state information in an

administrative state entry in the path integrity protocol table in association with the path

definition (see paragraph 36).

For claim 14, Kavanagh discloses a method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, the method further comprises consulting the path integrity

table to determine the operational state of the path before attempting to set up a GTP tunnel on

the path; and choosing an alternate route for the GTP tunnel if the path integrity table indicates

the path is disabled or unknown (see paragraph 58).

For claim 24, Kavanagh discloses a UMTS/GPRS network node comprising:

main network node functional blocks;

a GTP Echo Request/Response processor that is operative to transmit GTP Echo

Requests to other nodes in a UMTS/GPRS network when directed to do so by other components

of the UMTS/GPRS network node and receive and process GTP Echo response messages from

the other nodes in the UMTS/GPRS network as directed by the other components of the

UMTS/GPRS network node (see paragraph 54);

a path integrity protocol module that is operative to build a path integrity protocol table

by extracting path integrity information from network message traffic associated with the node

and record the extracted information in the path integrity protocol table, update the information

recorded in the table by extracting updated path integrity information from additional network

message traffic associated with the node and recording the extracted updated information in the

table, monitor the age of recorded information stored in the table and update old information in

the table by directing the GTP Echo Request/Response processor to transmit GTP Echo Requests

over paths associated with the old table information and to provide information to the path

integrity protocol module regarding the reception or lack of reception of GTP Echo Response

messages associated with the GTP Echo Requests, the path integrity protocol module being

further operative to replace the old recorded information with new information based on the

information provided ,to the path integrity protocol module by the GTP Echo Request/Response

processor (see paragraph 55).

For claim 25, Kavanagh discloses a UMTS/GPRS network node wherein the main

network node functional blocks comprise functional blocks selected from: Radio Node

Controller main functional blocks, Serving GPRS Support Node main functional blocks and

Gateway GPRS Support Node main functional blocks (see paragraph 13).

For claim 26, Kavanagh discloses a UMTS/GPRS network node wherein the path

integrity protocol module is operative to build a path integrity protocol table by extracting path

integrity information from at least one of Create PDP Context Request message traffic, GTP

Echo Request message traffic, GTP Echo Response message traffic, Create PDP Context

Response message traffic and GTP User datagram message traffic (see paragraph 48).

For claim 27, Kavanagh discloses a UMTS/GPRS network node wherein the path

integrity protocol module is further operative to build a path integrity protocol table by extracting

path definition and path operational status information from the network message traffic

associated with the node and record the extracted information in the path integrity protocol table

(see paragraph 55).

For claim 28, Kavanagh discloses a UMTS/GPRS network node wherein the path

integrity protocol module is further operative to build a path integrity protocol table by extracting

path definition information including a source IP address, a destination IP address and a port

number from the network message traffic associated with the node (see paragraph 47).

For claim 31, Kavanagh discloses a UMTS/GPRS network node wherein the path

integrity protocol module is further operative to accept manual path definition entries and

include records associated with the manual path definition entries in the path integrity protocol

table (see paragraph 64).

For claim 32, Kavanagh discloses a UMTS/GPRS network node wherein the path

integrity protocol module is further operative accept manually entered administrative state

information associated with a path definition record, and update an administrative state entry in

the path integrity protocol table associated with the path definition record according to the

manually entered administrative state information (see paragraph 64).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or
> described as set forth in section 102 of this title, if the differences between the subject
> matter sought to be patented and the prior art are such that the subject matter as a whole
> would have been obvious at the time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains. Patentability shall not be negatived
> by the manner in which the invention was made.

6.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness
       or nonobviousness.

7.   Claims 2, 3, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kavanagh (U.S. Patent Application Publication 2003/0081607) in view of O'Neill et al. (U.S.

Patent 7,242,678).

For claims 2, 3, and 30, Kavanagh discloses all the subject matter of the claimed

invention with the following exceptions:

A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network wherein defining the path based on the first node IP address, the second node IP address

and the UDP port number comprises: defining a static path based on a static first node IP

address, a static second node IP address and a static UDP port number; and storing the static path

definition as a path entry in the path integrity table as recited in claim 2.

A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network wherein defining the path based on the first node IP address, the second node IP address

and the UDP port number comprises: defining a dynamic path based on a dynamic first node IP

address, a dynamic second node IP address and a UDP port number as recited in claim 3.

A UMTS/GPRS network node wherein the path integrity protocol module is further

operative to delete path information from the path integrity table when an operational status of

the path associated with the path information has been --disabled-- for longer than a path

disabled duration limit as recited in claim 30.

O'Neill et al. from the same or similar fields of endeavor disclose a method of controlling

packet routing with three basic functions: creating routes, maintaining routes, and erasing routes

(see column 6 lines 20-37). The method includes the use of a value that records the time of a

link failure (see column 6 lines 51-55). The method also includes the capability to function over

static and dynamic IP addresses (see column 8 lines 27-36). Thus, it would have been obvious to

the person of ordinary skill in the art at the time of the invention to use the packet routing

method as taught by O'Neill et al. with the method for providing improved GTP path integrity

assurance in a UMTS/GPRS network as taught by Kavanagh. The packet routing method as

taught by O'Neill et al. can be implemented with the method for providing improved GTP path

integrity assurance in a UMTS/GPRS network as taught by Kavanagh by utilizing the modified

Temporally-Ordered Routing Algorithm routing protocol as taught by O'Neill in the IP network.

The motivation for using the packet routing method as taught by O'Neill et al. in the method for

providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by

Kavanagh is to reduce the amount of signaling required to alter a route for a mobile IP address.

8.   Claims 7, 10, and 15-21are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kavanagh (U.S. Patent Application Publication 2003/0081607) in view of Haumont et al. (U.S.

Patent 7,023,825).

For claim 15, Kavanagh discloses method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, wherein the method comprises: Receiving GTP messages;

building a path integrity table of records from information included in the GTP messages, each

record in the path integrity table including a path definition, an operational state entry and a time

stamp entry, the path definition including at least a source IP address, a destination IP address

and a port number, updating records in the path integrity table when additional GTP messages

associated with path definitions having records in the table are received based on information

included in the additional messages, or when expected messages are not received, updating the

records based on the lack of reception of the expected messages; and making information in the

path integrity table available to call processing and OAM subsystems of the GPRS network (see

paragraph 47 and figure 4).

For claim 16, Kavanagh discloses method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, wherein receiving GTP messages comprises receiving

messages selected from: Create PDP Context Request messages, GTP Echo Request messages,

receiving GTP Echo Response messages, Create PDP Context Response messages, GTP User

datagrams and Gratuitous GTP Echo Response messages (see paragraph 48).

For claim 17, Kavanagh discloses method for providing improved GTP path integrity assurance in a UMTS/GPRS network, wherein the method comprises receiving administrative state information regarding the path; storing the administrative state information in an administrative state entry in the path integrity protocol table in association with the path definition; and transmitting a Gratuitous GTP Echo Response message (see paragraph 36 lines 1-3).

For claim 18, Kavanagh discloses method for providing improved GTP path integrity assurance in a UMTS/GPRS network, wherein updating records in the path integrity table comprises comparing values of the time stamp entries of records in the table to a current time to determine ages of the records; transmitting a GTP Echo Request to the destination IP address and port number associated with any record having an age greater than a desired record age limit, the GTP Echo Request including the source IP address associated with the record; and updating the entries of the any record based on a received GTP Echo Response associated with the GTP Echo Request or on a lack thereof (see paragraphs 53 and 55).

For claim 19, Kavanagh discloses method for providing improved GTP path integrity assurance in a UMTS/GPRS network, wherein updating the entries of the any record comprises receiving the GTP Echo Response message; and updating the operational state entry to -- Enabled-- and the time stamp entry to a time associated with the GTP Echo Response message (see paragraphs 53 and 55).

For claim 20, Kavanagh discloses method for providing improved GTP path integrity assurance in a UMTS/GPRS network, wherein updating the entries of the any record comprises determining that the GTP Echo Response message was not received; comparing a retry counter

value to a retry limit; transmitting another GTP Echo Request message if the retry counter value

is less that the retry limit; and incrementing the retry counter (see paragraphs 53 and 55).

For claim 21, Kavanagh discloses method for providing improved GTP path integrity

assurance in a UMTS/GPRS network, wherein updating the entries of the any record comprises

determining that the GTP Echo Response message was not received; comparing a retry counter

value to a retry limit; updating the operational state entry to --Disabled-- if the retry counter

value is equal to or greater than the retry limit; and updating the time stamp entry to a time

associated with the updating of the operational state entry to --Disabled--(see paragraphs 53 and

55).

For claims 7, 10, 15, 19, 20, and 21, Kavanagh discloses all the subject matter of the

claimed invention with the following exceptions:

A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network, wherein the method comprises determining that the second node has not responded to

the transmitted GTP Echo Request message; determining an operational state of the path to be --

Disabled-- based on the determination that the second node has not responded to the transmitted

GTP Echo Request message; updating the operational state entry associated with the path

definition in the path integrity table to be --Disabled--; and updating the time stamp with a value

related to the determination that the second node has not responded to the transmitted GTP Echo

Request message as recited by claim 7.

A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network, wherein the method comprises determining that a GTP Echo Response was not

received; updating the operational state of the path to be --unknown--; and transmitting a second

GTP Echo Request message from the first node to the second node, using the port number and using the first node IP address as a source address and the second node IP address as a destination address as recited by claim 10.

The operational state entry having a value selected from --Enabled--, --Disabled-- and --Unknown--, the time stamp entry having a value indicative of a time information in the record was last updated as recited in claim 15.

Haumont et al. from the same or similar fields of endeavor disclose a mobile communications system and method that transmits multiple data flows using different states for managing the mobile subscriber (see column 3 lines 22-52). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the mobile communications system that transmits multiple data flows using different states for managing the mobile subscriber as taught by Haumont et al. with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh. The mobile communications system and method that transmits multiple data flows using different states as taught by Haumont et al. can be implemented with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh by running a process at the Gateway GPRS Support Node (GGSN) to manage flow and profile associations. The motivation for using the mobile communications system and method that transmits multiple data flows using different states as taught by Haumont et al. with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh is to allow QoS services and improve the efficiency of the network capacity utilization.

9.   Claims 8, 9, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kavanagh (U.S. Patent Application Publication 2003/0081607) in view of Haumont et al. (U.S.

Patent 7,023,825) as applied in claims 7 and 21 above and in further view of O'Neill et al. (U.S.

Patent 7,242,678). .

        For claims 8, 9, 22, and 23, Kavanagh and Haumont et al. discloses all the subject matter

of the claimed invention with the following exceptions:

        A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network that comprises setting a path disabled time stamp entry to a value related to the

determination that the second node has not responded to the transmitted GTP Echo Request

message as recited in claim 8.

        A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network that comprises comparing the value of the path disabled time stamp entry to a current

time, thereby determining a path disabled duration; and deleting the path definition and

associated information from the path integrity table if the path disabled duration is greater than a

predefined path disabled duration limit as recited in claim 9.

        A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network that comprises setting a path disabled time stamp entry associated with the path

definition in the path integrity table to a time associated with the updating of the operational state

entry to --Disabled—as recited in claim 22.

        A method for providing improved GTP path integrity assurance in a UMTS/GPRS

network that comprises comparing the value of the path disabled time stamp entry to a current

time, thereby determining a path disabled duration; and deleting the record associated with the

path definition from the path integrity table if the path disabled duration is greater than a predefined path disabled time limit as recited in claim 23.

O'Neill et al. from the same or similar fields of endeavor disclose a method of controlling packet routing with three basic functions: creating routes, maintaining routes, and erasing routes (see column 6 lines 20-37). The method includes the use of a value that records the time of a link failure (see column 6 lines 51-55). The method also includes the capability to function over static and dynamic IP addresses (see column 8 lines 27-36). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the packet routing method as taught by O'Neill et al. with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh and Haumont et al. The packet routing method as taught by O'Neill et al. can be implemented with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh and Haumont et al. by utilizing the modified Temporally-Ordered Routing Algorithm routing protocol as taught by O'Neill in the IP network. The motivation for using the packet routing method as taught by O'Neill et al. in the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh and Haumont et al. is to reduce the amount of signaling required to alter a route for a mobile IP address.

10.   Claims 11 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavanagh (U.S. Patent Application Publication 2003/0081607) in view of Forssell (U.S. Patent 7,215,955).

For claims 11 and 29, Kavanagh disclose all the subject matter of the claimed invention with the exception of extracting and storing a restart counter value from GTP messages. Forssell from the same or similar fields of endeavor discloses a system for restoring subscriber context in a mobile network that transmits messages that include a restart counter value (see column 2 lines 42-60). Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to use the mobile communications system that transmits messages including a restart counter value as taught by Forssell with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh. The mobile communications system that transmits messages including a restart counter value as taught by Forssell can be implemented with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh by configuring the GPRS support nodes to include the restart counter value with PDP context messages. The motivation for using the mobile communications system that transmits messages including a restart counter value as taught by Forssell with the method for providing improved GTP path integrity assurance in a UMTS/GPRS network as taught by Kavanagh is to reduce unnecessary subscriber context re-activations.
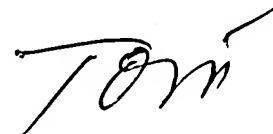
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben H. Liu whose telephone number is (571) 270-3118. The examiner can normally be reached on 9:00AM to 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BL

DANG T. TON
SUPERVISORY PATENT EXAMINER